

ABSTRACT

A method and apparatus for increasing the capability of a network topology model having a plurality of nodes connected by existing links to maintain service continuity in the presence of faults. The steps of the method include adding new links to the network topology model to protect against single node failures, and adjusting link weights for the network topology model to reduce at least one of a cost of network operation and an imbalance in link utilizations. Preferably, the link weights are adjusted to reduce the imbalance in link utilizations without deteriorating the cost of network operation. The link weights are preferably adjusted to reduce the cost of network operation without increasing the imbalance in link utilizations. Preferably, the link weights are adjusted to reduce the cost of network operation without increasing the imbalance in link utilizations while keeping the utilization for each link below a specific threshold. In addition, links can be added to the network topology model to reduce the cost of network operation.

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